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EXAMINER	
SCHINDLER, DAVID M	

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/516,491	REININGER ET AL.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 December 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 12/01/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-4, 7-10, and 12-16 are objected to because of the following informalities:

As to Claim 1,

The phrase "the plane" on line 6 lacks antecedent basis.

As to Claim 2,

The phrase "the rear side" on line 2 lacks antecedent basis.

The phrase "the lead" on line 4 lacks antecedent basis.

The phrase "printed wiring" on line 4 is unclear as it is not clear if this wiring is the same as that mentioned in Claim 1.

The phrase "a front end side" on line 4 is unclear as it is not clear what constitutes a front end side.

As to Claim 3,

The phrase "the lead" on line 3 lacks antecedent basis.

The phrase "the bottom side" on line 3 lacks antecedent basis.

As to Claim 4,

The phrase "the recess" on line 4 is awkward as it appears this phrase is referring to the term "recesses" on line 3.

As to Claim 7,

The phrase "the material" on line 2 lacks antecedent basis.

As to Claim 8,

The phrase "the support face for the sensor element is oriented in the longitudinal direction of the circuit substrate" on lines 2-3 is unclear as it is not clear what the support face for the sensor element is. The support face shown in Figure 4 appears to be perpendicular to the longitudinal direction, not oriented in the longitudinal direction.

The phrase "a normal to its face" on line 3 is awkward.

As to Claim 9,

The phrase "the front end side" on line is unclear as it is not clear what constitutes a front end side.

As to Claim 10,

The phrase "the front end region" on line 2 lacks antecedent basis.

The phrase "in the middle" on line 4 lacks antecedent basis and is unclear as it is not clear what this phrase is referring to.

As to Claim 12,

The phrase "the front and the rear end region" on line 3 lacks antecedent basis.

As to Claim 13,

The phrase "the longitudinal middle thereof" on lines 2-3 lacks antecedent basis.

As to Claim 14,

The phrase "the sensor" lacks antecedent basis.

As to Claim 15,

The phrase "the sensor housing" on line 3 lacks antecedent basis.

As to Claim 16,

The phrase "the first Hall plate" on lines 3-4 lacks antecedent basis.

The phrase "a second Hall sensor element" on lines 2-3 is awkward and unclear as it is not clear what constitutes a first Hall sensor element. It is noted to applicant that claim 1 recites "a sensor element including a Hall plate or constituted by a Hall plate" on line 5.

The phrase "the first sensor element" on line 4 lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5, and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Doderer et al. (herein referred to as "Doderer") (6,534,994).

As to Claim 1,

Doderer discloses an elongated circuit substrate ((2) in combination with (11), (10), and (9)) designed as a molded interconnect device (MID) (Column 3, Lines 10-26), which includes an elongated support element (2) consisting of injection molded plastic material and having at a front end side thereof a support face which is so fitted with a

sensor element (4) including a Hall Plate that the plane of the Hall plate extends at a right angle to the longitudinal axis of the circuit substrate, the sensor element being electrically contacted by means of printed wiring constituted by a structured metal layer applied to the support element ((Figures 1 and 3) and (Column 2, Lines 1-10) and (Column 3, Lines 10-26)).

With respect to the above claimed printed wiring, the Examiner would like to note lines 6-11 of paragraph [0039] of page 9 of Applicant's specification. It appears from this that the wiring is formed by electroplating, and thus the Examiner notes lines 24-26 of column 3 of Doderer with respect to this (note galvanically).

As to Claim 2,

Doderer discloses an electrical lead ((7) in combination with (8)) extending from the rear side (right side in Figure 3), opposite to the front end side, of the circuit substrate, electrical conductors of the lead being contacted by printed wiring of the circuit substrate (Figure 2).

As to Claim 3,

Doderer discloses the printed wiring extends on its path between the sensor element and the electrical conductors of the lead at least partially at the bottom side of the support element (Figure 3).

As to Claim 5,

Doderer discloses the support element is fitted with electronic components on the printed wiring (Column 2, Lines 11-18).

As to Claim 8,

Doderer discloses the support face of the sensor element is oriented in the longitudinal direction of the circuit substrate (Figure 3), a normal to its face being co-direction with the longitudinal axis of the circuit substrate (Figure 3).

As to Claim 9,

Doderer discloses the support face is provided directly on the front end side of the support element (Figure 3).

As to Claim 10,

Doderer discloses the front end region of the support element is constituted by a T-like support section (Bottom of Figure 3) which, together with a connecting neck (bottom part of (2) in Figure 3) extending in the longitudinal direction in the middle and with an adjoining transversely extending support board (the piece that (4) is attached to in Figure 3), defines the support face (Figure 3).

As to Claim 11,

Doderer discloses the sensor element is a Hall chip provided with an evaluating electronic system, in addition to the Hall plate (Column 2, Lines 5-18).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doderer et al. (herein referred to as "Doderer") (6,534,994) in view of Gass (5,789,920).

As to Claim 4,

Doderer does not disclose the printed wiring extends at least partially in recesses in the support element and is covered in a hermetically sealing fashion by filler material applied to the recess.

Gass discloses the printed wiring extends at least partially in recesses in the support element and is covered in a hermetically sealing fashion by filler material applied to the recess ((Figure 1) and (Column 2, Lines 40-60)).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the printed wiring extends at least partially in recesses in the support element and is covered in a hermetically sealing fashion by filler material applied to the recess as taught by Gass in order to protect the sensor from dirt and other debris.

As to Claim 6,

Doderer does not disclose the sensor element and the printed wiring and furthermore any electronic components provided on the support element are encapsulated in a casing body of plastic which is molded in position by injection molding on the support element.

Gass discloses the sensor element and the printed wiring and furthermore any electronic components provided on the support element are encapsulated in a casing body of plastic which is molded in position by injection molding on the support element ((Figure 1) and (Column 2, Lines 40-60) and (Column 4, Lines 20-39)).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the sensor element and the printed wiring and furthermore any electronic components provided on the support element are encapsulated in a casing body of plastic which is molded in position by injection molding on the support element as taught by Gass in order to protect the sensor from dirt and other debris.

As to Claim 7,

Doderer does not disclose the material of the casing body is transparent to light so that optical signals of encapsulated optical display means may emerge.

Gass discloses a plastic inside part is transparent to light so that optical signals of encapsulated optical display means may emerge (Column 3, Lines 9-19).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the material of the casing body is transparent to light so that optical signals of encapsulated optical display means may emerge as taught by Gass in order to be able to view the light of an indicator located inside the case.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doderer et al. (herein referred to as "Doderer") (6,534,994) in view of Sakurai (2002/0100336).

As to Claim 12,

Doderer does not disclose an attachment means provided between the front and rear end region of the circuit substrate for releasable clamping attachment of the position sensor in an attachment slot in another component.

Sakurai discloses an attachment means provided for releasable clamping attachment of the position sensor in an attachment slot of another component ((Figures 1 and 6) and (Page 3, Paragraph [0044])).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include an attachment means provided between the front and rear end region of the circuit substrate for releasable clamping attachment of the position sensor in an attachment slot in another component given the above disclosure and teaching of Sakurai in order to firmly attach the position sensor in an attachment groove.

As to Claim 13,

Doderer does not disclose the attachment means is placed on the circuit substrate in the longitudinal middle thereof.

Sakurai discloses the attachment means is attached to the position sensor in the longitudinal direction of the position sensor (Figure 1).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the attachment means is placed on the circuit substrate in the longitudinal middle thereof given the above disclosure and teaching of Sukurai in order to allow the position sensor to be firmly attached in an attachment groove.

As to Claim 14,

Doderer does not disclose the sensor is designed to be placed during use in such a fashion in an attachment slot in a component that its longitudinal axis extends parallel to the longitudinal axis of the attachment slot and possess attachment means rending possible a detachable clamping attachment in the attachment slot.

Sakurai discloses the sensor is designed to be placed during use in such a fashion in an attachment slot in a component that its longitudinal axis extends parallel to the longitudinal axis of the attachment slot and possess attachment means rending possible a detachable clamping attachment in the attachment slot ((Figures 1 and 6) and (Page 3, Paragraph [0044])).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the sensor is designed to be placed during use in such a fashion in an attachment slot in a component that its longitudinal axis extends parallel to the longitudinal axis of the attachment slot and possess attachment means rending possible a detachable clamping attachment in the attachment slot as taught by Sakurai in order to firmly attach the position sensor in an attachment groove.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doderer et al. (herein referred to as "Doderer") (6,534,994) in view of Sumi et al. (JP 10062284 A).

Doderer does not explicitly disclose the circuit substrate at least partially constitutes the sensor housing.

Sumi et al. discloses the circuit substrate at least partially constitutes the sensor housing (Abstract, Lines 1-3).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include the circuit substrate at least partially constitutes the sensor housing in order to simplify the manufacturing process.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doderer et al. (herein referred to as "Doderer") (6,534,994) in view of Dukart et al. (5,880,586).

Doderer does not disclose a second Hall sensor element having a second Hall plate whose alignment is unlike that of the first Hall plate of the first sensor element.

Dukart et al. discloses a second Hall sensor element having a second Hall plate whose alignment is unlike that of the first Hall plate of the first sensor element ((Figure 2) and (Column 5, Lines 1-3)).

It would have been obvious to a person of ordinary skill in the art to modify Doderer to include a second Hall sensor element having a second Hall plate whose alignment is unlike that of the first Hall plate of the first sensor element as taught by Dukart et al. in order to allow for two components of an external field located in the

plane of the surface bearing the sensor elements to be detected easily and very precisely (Column 3, Lines 34-39).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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